

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1-32. (Cancelled).

33. (Currently Amended) A bolt and anchor assembly for securing a mine roof bolt, comprising:

a bolt;

a shell disposed on said bolt, said shell having a first end and a second end;

an expansion member axially disposed on said bolt adjacent said second end of said shell for expanding said shell to anchor said elongated bolt in an associated bore hole; and

a support device axially disposed on said bolt adjacent said first end of said shell, engagement between said support device and said shell sequentially (1) forces said shell into said expansion member to expand said shell to anchor said bolt in said associated bore hole while said support device remains axially fixed relative to said shell and (2) then after said bolt is anchored in said associated bore hole allows axial movement of said support device in a direction toward and relative to said shell without further anchoring of said shell in to a final installed position wherein said first end of said support device does not engage said associated bore hole.

34-42. (Cancelled).

43. (Currently Amended) An expansion shell assembly, comprising:

an elongated bolt;

an expansion shell having fingers at one end for engaging a rock formation and an aperture for receiving the elongated bolt;

an expansion member disposed on one end of the elongated bolt for expanding the fingers of the expansion shell; and

a shell support in contact with the elongated bolt and an opposite end of the expansion shell, the shell support generally maintaining the axial position of the expansion shell relative to the elongated bolt while the expansion member forces ~~[[all]]~~ the fingers of the shell to engage the rock formation and moving axially relative to the expansion shell when the elongated bolt is tensioned after engagement of all the fingers of the shell to the rock formation, when said shell support is in a final installed state said fingers at said one end engaged with said rock formation and said opposite end not engaged with said rock formation.

44-45. (Cancelled).

46. (Currently Amended) A method for anchoring and tensioning a mine roof bolt with an expansion shell assembly in a drilled hole, the expansion shell assembly including an expansion shell disposed on the mine roof bolt, an expansion member disposed on the mine roof bolt adjacent one end of the expansion shell for expanding the expansion shell and a support member disposed on the mine roof bolt adjacent another end of the expansion shell for supporting the expansion shell while the shell expands and tensioning the mine roof bolt after the shell expands, the method comprising:

inserting and advancing said mine roof bolt with said expansion shell assembly carried thereon into a drilled hole in a rock formation;

rotating said mine roof bolt to anchor said expansion shell assembly in said drilled hole with said support device axially fixed relative to said expansion shell; and

further rotating said mine roof bolt, after said step of rotating said mine roof bolt to anchor said expansion shell assembly in said drilled hole, to tension said mine roof bolt with said support device axially moving into said expansion shell ~~[[and]]~~ to a final install position wherein said one end of said expansion shell is anchored to said rock formation and said another end of said expansion shell riding up and over said support device is not anchored to said rock formation.

47-48. (Cancelled).

49. (Currently Amended) An expansion shell assembly for mine roof bolts, comprising:

an expansion member threaded onto an associated bolt;

a support device annularly disposed around the associated bolt; and

a shell annularly disposed on the bolt between the expansion member and the support device, the shell having a base ring at one end thereof with a tapered surface for engagement with the support device and fingers at an opposite end for engaging the expansion member, wherein said engagement between said base ring and said support device allows axial movement of said support device into and through said base ring of said shell for tensioning said associated bolt after said fingers of said shell are expanded by said expansion member ~~with an outer diameter of said support device substantially matching an inner diameter of said shell base ring during and after movement of said support device through said base ring,~~ said fingers anchored to a borehole into which said expansion shell assembly is inserted and said base ring at said one end of said shell not anchored to said borehole when said support device is in a final installed state.

50. (Previously Presented) The bolt and anchor assembly of claim 33 wherein said support device is threadedly received on said associated bolt.

51. (Previously Presented) The bolt and anchor assembly of claim 33 wherein at least one of (1) said support device and (2) said shell includes a tapered surface adjacent the other one of said support device and said shell, said tapered surface facilitates said axial movement of said support device in said direction toward and relative to said shell.

52. (Previously Presented) The bolt and anchor assembly of claim 51 wherein said support device includes a first tapered surface adjacent said shell and said shell includes a second, corresponding tapered surface at said shell first end for cooperating with said first tapered surface.

53. (Previously Presented) The bolt and anchor assembly of claim 33 wherein said axial movement of said support device in said direction toward and relative to said shell occurs only after at least one of (1) a predetermined force is applied on said shell by

said support device and (2) a predetermined bolt torque is applied on said shell by said support device.

54. (Currently Amended) The bolt and anchor assembly of claim 33 wherein a base ring of said shell at said first end of said shell partially expands without engaging the associated bore hole upon application of a sufficient force on a bottom radial end of said base ring by said support device that ~~fully allows~~ facilitates said axial movement of said support device in said direction toward and relative to said shell.

55. (Previously Presented) The bolt and anchor assembly of claim 33 wherein a base ring at said first end of said shell includes a weakened area that facilitates said axial movement of said support device in said direction toward and relative to said shell to allow said support device to move through said base ring.

56. (Previously Presented) The bolt and anchor assembly of claim 33 wherein a base ring at said first end of said shell includes at least one notch that facilitates said axial movement of said support device in said direction toward and relative to said shell to allow said support device to move through said base ring.

57. (Previously Presented) The bolt and anchor assembly of claim 33 wherein a base ring at said first end of said shell includes at least one split that facilitates said axial movement of said support device in said direction toward and relative to said shell to allow said support device to move through said base ring.

58. (Previously Presented) The bolt and anchor assembly of claim 57 wherein said axial movement of said support device in said direction toward and relative to said shell only occurs after a predetermined axial force of about 5,000 lbs. is applied on said shell by said support device.

59. (Previously Presented) The expansion shell assembly of claim 33 wherein the support device comprises a threaded lower support threadedly engaged with the

elongated bolt and an upper support for reducing the amount of torque transferred to the expansion shell during installation.

60. (Previously Presented) The expansion shell assembly of claim 33 further comprising an antifriction washer adjacent a lower end of the support device for reducing the amount of torque transferred to the expansion shell during installation.

61. (Previously Presented) The expansion shell assembly of claim 33 wherein at least a portion of the support device includes an antifriction coating to reduce the amount of torque transferred to the expansion shell during installation.

62. (Previously Presented) The expansion shell assembly of claim 33 wherein the support device is positioned on an unthreaded portion of the roof bolt between a threaded portion of the roof bolt and a shoulder of the roof bolt prior to threads being rolled on the threaded portion to generally restrict axial movement of the support device.

63. (Previously Presented) The expansion shell assembly of claim 33 wherein the support device is unthreaded and slidably received on the bolt between a shoulder of the bolt and a distal end of the bolt inserted into the associated bore hole.

64. (Previously Presented) The bolt and anchor assembly of claim 33 wherein the support device is formed integrally with the elongated bolt.

65. (Previously Presented) The expansion shell assembly of claim 43 wherein said expansion shell includes a base ring at an end adjacent said shell support that is in contact with said shell support, said base ring including a weakened area for facilitating movement of said shell support through said base ring of said shell.

66. (Previously Presented) The expansion shell assembly of claim 65 wherein said weakened area is one of a notch and a slit.

67. (Previously Presented) The method of claim 46 wherein said step of rotating said mine roof bolt to anchor said expansion shell assembly including the sub-steps of:
 forcing said support device against said expansion shell;
 forcing said expansion shell against said support device; and
 forcing all fingers of said expansion shell to move radially outwardly to grip said rock formation.

68. (Previously Presented) The method of claim 46 wherein said step of further rotating said mine roof bolt includes the sub-steps of:
 forcing said support device axially into said expansion shell; and
 diametrically expanding a base ring of said expansion shell to allow said support device to move axially into and through said base ring of said expansion shell without further anchoring said shell in said drilled hole.

69. (Cancelled).

70. (Previously Presented) The expansion shell assembly of claim 43 wherein said shell support is threadedly engaged with said elongated bolt.

71. (Previously Presented) The expansion shell assembly of claim 49 wherein said
 engagement between said base ring and said support device allows axial movement of said support device into and through said base ring with said shell riding upward over said support device.